

Bend Aero Modelers



Flight Report

April 2015



“Learn To Fly”

Students and Instructors

April Meeting at the Black Bear Diner

Next Meeting



April 22, 2015
6:30pm at Black Bear Diner
Food available
Come early to visit and eat!

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FROM THE PRESIDENT

Message from the President



Dear Members & Interested Readers:

Well, Spring is here and with it comes better (and more frequent) flying opportunities here in Central Oregon. Our second COCC "*Learn To Fly R/C Model Airplanes*" class has concluded and this will likely lead to continued growth in our club. It is exciting to see the level of enthusiasm coming from our new members. Each flight instruction lesson results in the continued development of flying skills and this is also exciting to see. Our new pilots are experiencing the same "edge of your seat" ups and downs of flying that even our most seasoned pilots experience as they fly and land their aircraft.

As we grow in numbers, it is vital that we continue to focus on Safety as we prepare and fly our aircraft! With more "new to the hobby" members, it is very important that our seasoned pilots set a good example before, during and after flight. Communication continues to be the key in most situations. Always call out your intentions so that all pilots with birds in the air clearly know what is happening with other planes on the runway or in the air. Don't be afraid to yell loud enough so that everyone at the flying field will clearly know your intentions. And don't forget to acknowledge another pilots intentions. Good communication results in awareness by all pilots of another's intentions.

Our runway repair work will soon be completed (within the next two weeks). The result will be a runway free of *wheel alligators* (cracks) and a surface that is dark, smooth and beautiful! As discussed during our April Meeting, *Central Oregon Asphalt Sealing* will be doing all of the work. They will also repaint our center line at no additional charge. I can't wait to fly after the repairs have been completed. I would like to thank **Tom Rainwater** for all of his work on this project. He has done an outstanding job of obtaining quality bids from several asphalt repair companies. I would also like to thank our members for approving this important runway maintenance project! Our runway is our biggest asset, and keeping it in tip top condition will benefit all of us.

Hey, lets go flying!

Greg McNutt



“Drones”: A Summary of Rules, Recommendations and Best Practices—By Waldemar Frank

“Drones” are here to stay and their popularity among recreational operators as well as commercial operators is a challenge for regulators such as the FAA, organized clubs, and communities. While rules and best practices are still evolving, the mass interest and ongoing use is a daily reality as frequent news headlines and incident reports highlight.

“Drones” used to be the umbrella term to refer to autonomous airplanes, but is actually no longer the proper designation. Per FAA, a “drone” is an Unmanned Aircraft System (UAS)—note the addition of the word “System.”

Here are some additional criteria regarding a UAS:

- A model aircraft (UA) becomes a UAS when additional capabilities are added beyond its basic capability to fly remotely (e.g., taking video or pictures, live video streaming via First-Person View (FPV) system, etc.)
- A UAS does not require certification or a special waiver from the FAA as long as it is used in accordance with the standard definition of a model aircraft
- A model aircraft that has UAS capabilities is often referred to as a “small UAS” (sUAS)

The important takeaway is that a model airplane that is operated as a UAS (or UAV) won’t require a waiver. Per FAA a model aircraft² is defined as follows:

- A model aircraft is an unmanned aircraft (UA)
- Can weigh up to 55 lbs without requiring certification
- Capable of sustained flight in the atmosphere
- Flown exclusively for hobby or recreational purposes
- Flown below 400 ft
- Flown within visual line of sight of the person operating the aircraft
- Flown in accordance with community-based safety guidelines and a nationwide community-based organization (e.g., AMA and/or local AMA-chartered club)
- Does not interfere with and must give way to any manned aircraft
- UAS operator must notify airport operator and airport air traffic control tower when flying within 5 miles of an airport

In other words, as long as you stay within the above requirements, you can use your model airplane to take video and pictures for personal use.

Additional FAA resources:

- Dos and Don’ts:
http://www.faa.gov/uas/publications/model_aircraft_operators/
- FAQ:
<http://www.faa.gov/uas/faq/#qn1>

¹ Unmanned Aircraft System (UAS) refers to the entire system (incl. ground equipment) whereas Unmanned Aerial Vehicle (UAV) refers to the aircraft itself

² Requirements to qualify as a model aircraft under the FAA Modernization and Reform Act of 2012 (Pub. L. 112-95, Section 336—“*Special Rule for Model Aircraft*”):
http://www.faa.gov/uas/media/model_aircraft_spec_rule.pdf

More recently, the FAA **proposed** a set of recommendations³ for safe operation for UAS operators who want to fly outside the current definition of a model aircraft. It is important to highlight that these are proposed recommendations and that further discussion is necessary to put permanent rules in place:

- See and avoid manned aircraft
- If there is a risk of collision with a manned aircraft, proactively maneuver away the UAS/UAV
- Abort flight when posing a hazard to other aircraft, people or property
- Assess weather conditions, airspace restrictions and the location of people to lessen risks in case of loss of control of UAS/UAV
- Do not fly over people, except those directly involved with flying the UAS/UAV
- Limit flying to 500 feet altitude and no faster than 100 mph
- Stay out of airport flight paths and restricted airspace areas
- Comply with any FAA Temporary Flight Restrictions (TFRs)

Furthermore, FAA will grant a “blanket” Certificate of Authorization (COA)⁴ for flights at or below 200 feet to UAS operators for aircraft that:

- Weigh less than 55 pounds
- Fly during daytime Visual Flight Rules (VFR) conditions
- Fly within visual line of sight (VLOS) of the UAS
- Stay certain distances away from airports or heliports:
 - 5 nautical miles (NM) from an airport having an operational control tower; or
 - 3 NM from an airport with a published instrument flight procedure, but not an operational tower; or
 - 2 NM from an airport without a published instrument flight procedure or an operational tower; or
 - 2 NM from a heliport with a published instrument flight procedure

The “blanket” 200-foot COA applies anywhere in the country except restricted airspace and selected areas, such as major cities and where the FAA specifically prohibits UAS operations. A key differentiator when it comes to the applicable rules is whether or not a UAS is used for recreational (hobby) or commercial use. Examples of applications are listed below:

Recreational Use (Hobby)	Commercial Use
<ul style="list-style-type: none"> • Flying a model aircraft at the local model aircraft club • Taking photographs with a model aircraft for personal use • Using a model aircraft to move a box from point A to point B without compensation • Viewing a field to determine whether crops need water when they are grown for personal enjoyment 	<ul style="list-style-type: none"> • Using a model aircraft to photograph a property that will be depicted in the property’s real estate listing • Photographing a property or event and selling the photos to someone else • Collecting atmospheric and aerial data for commercial research using a model aircraft • Determining whether crops need to be watered that are grown as part of a commercial farming operation

³ Source: www.faa.gov/regulations_policies/rulemaking/media/021515_sUAS_Summary.pdf

⁴ See also: https://www.faa.gov/uas/civil_operations/

In summary, always make sure that you understand the specific application when operating a UAS to avoid potential issues and fines later on. The rules are still being developed, and changes and refined regulations will be ongoing for the foreseeable future.

Differences between recreational vs. commercial model aviation:

- Recreational flying assumes no commercial (business) application
- Providing services (e.g., acquiring data) or products (e.g., aerial images, goods, etc.) in return for money is an obvious commercial application
- Money alone does not always determine if a model aircraft is used for recreational or commercial use (e.g., providing a free service to a business is still a business transaction)
- Flying outside the definition of recreational model aircraft requires a waiver/license from the FAA and represents a commercial use (e.g., FPV flying beyond the visual line of sight or above 400 feet)
- **When unsure**, the FAA can provide guidance and issue required waivers/licenses

There does not seem to be a clear separation between operator types when it comes to the level of awareness and responsibility applied. That is, recreational and commercial operators can be equally irresponsible and ignorant in their application of drone technology. And the incident earlier in the year caused by a government worker who crashed his drone on the premises of the White House only illustrates that ignorance does not discriminate between drone operators.

This not only emphasizes that the technology is still in a state of uncertainty and that lawmakers and responsible organizations (e.g., FAA) are trying to stay ahead of the game. It also indicates that rules and regulations will not be effective if operators are unaware of them or simply ignore them.

However, there are signs that this is changing and that voices of responsibility are getting organized and collaborating to ensure that all interests are fairly represented—nobody is questioning the potential and popularity of this technology; however, it is apparent that the few ignorant and irresponsible operators can sabotage it for everybody in the long run. As a result, raising awareness in addition to defining effective and easy-to-follow rules are essential for ensuring the future of our hobby and avoiding excessive, one-size-fits-all restrictions.

AMA has been in discussion with the FAA for the past several years and after initial convergence on a workable solution, then divergence and now convergence again, our hobby seems to be moving towards a compromise that retains sufficient flexibility without significantly affecting existing rules for R/C model aviation.

When it comes to ignorance of the law and lack of responsibility, there are several contributing factors causing mishaps and violations.

1. The ease of access to the technology removes any obstacles to owning such technology. We see regular incidents involving recreational, commercial, and even government operators. Ease of access is a key reason for the widespread use.
2. UASs don't require an actual flying field. As a result, drones can be flown pretty much from anywhere. The lack of required infrastructure makes it easy to use them.
3. The ease of access and the lack of required infrastructure also make it easy to operate drones in an unorganized (unsupervised) setting. That is, operators don't need to be part of a club or community-based program to operate them. Typically a club or community-based program would provide a framework for safe and proper operation.
4. Many people who buy their first UAS think that they are easy to fly and don't require any sort of practice or training. It's almost as if people think that UASs are a typical consumer product that you buy and use. Being naïve and too confident might be another reason why incidents occur.

5. And of course it is our human nature to be complacent when it comes to information. It seems that many first-time operators are not proactively informing themselves about rules and regulations. This complacency is further amplified by an unorganized setting where the lack of a framework leaves it up to the operator to know about and comply with rules and regulations. It's easy to go about it with the attitude: "What I don't know doesn't affect me."

So, what can be done to avoid an escalation of bad practices and widespread mishaps? The first step is to raise awareness. In most cases people don't deliberately make poor decisions. And the few that do would likely do that anyway even if they knew better.

Raising awareness should not be limited to organized clubs and the AMA. Although the media has been directly or indirectly providing information about UAS operation and applicable regulations, the media may not be the most effective route for raising awareness. Clubs such as BAM are certainly a good resource and voice for safe practices; however, our role could be supplemented with the support of manufacturers and retailers.

As far as I can tell, the majority of manufacturers and retailers are not proactively providing guidance and information about applicable regulations and best practices. It is up to each operator to get informed and access relevant information. Since many first-time operators have not been involved long enough to know about existing regulations, chances are that they will never know or find out until after a mishap.

There are several initiatives that aim to bring different stakeholders together and educate UAS operators. The AMA has blogged about it and also covered current attempts in other communications.

Following are several resources that provide good information and guidance on UAS operation:

- <https://www.faa.gov/uas/>
- <http://knowbeforeyoufly.org/>
- <http://www.smalluavcoalition.org/>
- <http://www.auvsi.org/>

In conclusion, if you operate a UAS or are considering operating one, stay informed and voice your opinion when you are given the chance. The AMA continues to be our voice and you can always visit the respective blogs on AMA's website to stay informed:

- <http://amablog.modelaircraft.org/suas/>
- <http://amablog.modelaircraft.org/amagov/>

This technology is still evolving, as are the underlying regulations. Don't let ignorance drive your passion and motivation for this technology.

Fly safely and be responsible!

Waldemar

In the Hangar

By Greg McNutt

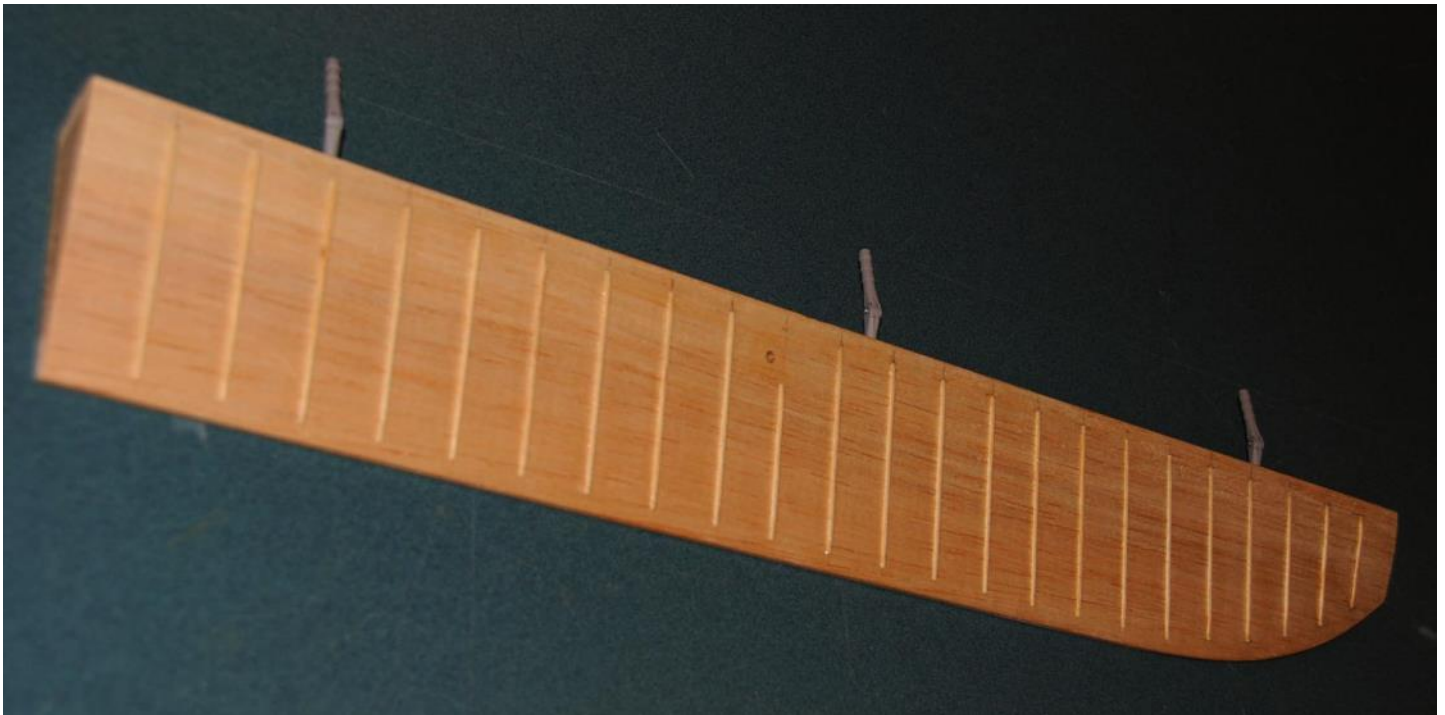
This is part three of our “In The Hangar” spotlight on **Tom Schramm’s Aeronca C-3** build. This is a quarter scale plane project that Tom has been working on since December of last



Tom Schramm

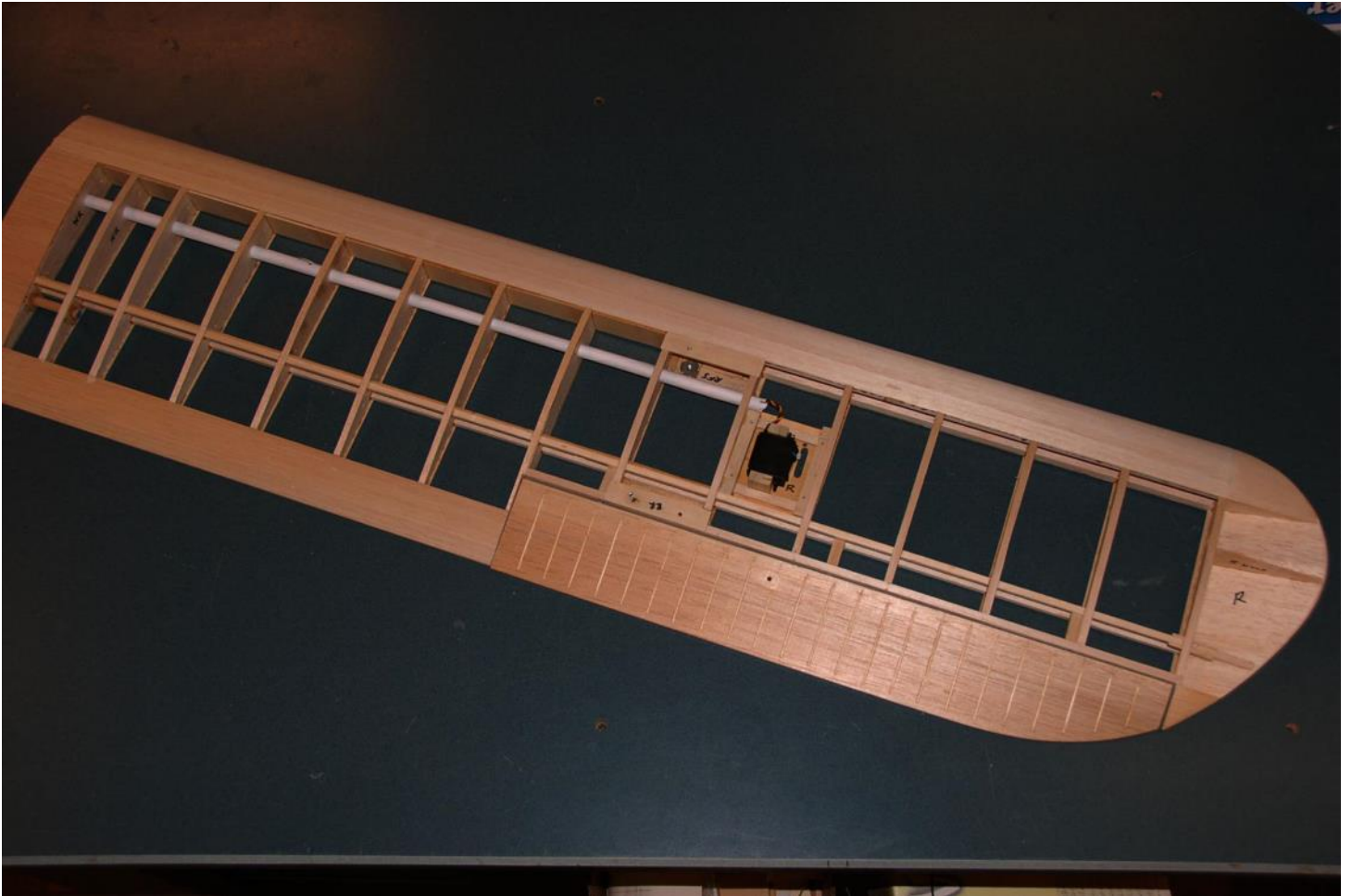
year (2014). Keep in mind that this is **NOT** a kit build project. Rather, Tom is building the Aeronca C-3 from a **set of plans**. He “kitted” the parts with the help of a 12” compound sliding miter saw, a 10” table saw, 10” disc sander, drill press and a #11 hobby knife. Tom started construction on New Year’s day. The materials that he is using include balsa, birch plywood and spruce, carpenters glue, epoxy and CA. The covering will be a bright yellow Solartex fabric

with green trim. The wingspan on the Aeronca is 9 feet. The Fuselage length is 50 inches. This big plane will be powered by a **Magnum 1.6 twin four stroke engine**. Per Tom, progress on the “**Flying Bathtub**” has slowed a bit due to spring fever or better known as “start getting the yard in shape for summer”. The ailerons are now complete and ready for covering. The



full size C-3 had ailerons made of sheet aluminum with stamped grooves for strength. To simulate these ribs on the model, Tom chose to make them raised as grooving the 3/32” balsa sheet may have compromised it’s strength. To make the raised ribs, Tom used soft 1/16” balsa sheet and cut 1/16” wide strips which were cut to length and glued in place, all 23 per aileron surface.

They were then block sanded to a 1/32" +/- thickness and followed by hand sanding to remove sharp edges and to flair the rib ends. Once covered with Ultracoat film, the ailerons will look acceptable. The remainder of the model will be covered in Solartex fabric. Look for more on Tom's build in the May edition of the BAM Newsletter!



Learn To Fly R/C Model Airplanes Class at COCC

By Greg McNutt

Waldemar Frank and I just concluded our “Learn to Fly” class (April 13-18) at COCC via their *Community Learning* program. The class was another hit and Waldemar did an awesome job of preparing for and conducting the class. All ten students enjoyed the class

Learn to Fly Remote Control Model Planes

Get an overview of flight safety and R/C technology as well as hands-on flight instruction. This class is for interested enthusiasts and newcomers to recreational R/C model aviation. It will help you understand the difference between recreational vs. commercial applications, organized vs. unorganized flying, airplane types, governing regulations and required equipment. Learn what it takes to get started and enjoy introductory flight training. Saturday's class will take place at the Pine Nursery airfield. Instructor: Frank Waldemar

Monday, April 13 & Wednesday, April 15 6:00 - 8:00 pm
Chandler Lab Room 207 (1027 NW Trenton Avenue, Bend)
Saturday, April 18 9:00 am - noon
Pine Nursery Airfield, Bend
570 CRN 27609

CLICK HERE to Register or call us at 541-383-7270

Community Learning
(541) 383-7270
<http://www.cocc.edu/continuing/>

In advance of college events, persons needing a communication or transportation because of a physical or sensory disability contact RDR Coordinator Jan Vela, 541-383-7270. For accommodation because of other disability such as hearing impairment, contact Ayaac Bakris, 541-383-7270.

and all ten joined us at Popp's Field on the final day (April 18th). Thanks to the help from **James Fredericks** and **Bruce Burgess**, the buddy boxing (with the students) went well. The weather cooperated and a good time was had by all.





Bend Aero Modelers



Bend, Oregon | AMA District XI | AMA Charter 2311

Field Safety Guidelines

A. GENERAL

1. All pilots shall be current members of AMA. Proof of current AMA membership is required prior to flying at BAM.
2. Visiting AMA pilots and new members of BAM shall receive a safety orientation by one of BAM's Safety Committee members prior to their first flight.
3. Pilots shall ensure flight operations in accordance with AMA's Safety Code and these Field Safety Guidelines at all times.
4. Pilots shall ensure proper operation of their aircraft and associated equipment prior to use.
5. Pilots shall show courtesy towards others and apply common sense when flying at BAM.
6. Pilots are encouraged to verbally enforce safe flying practices as appropriate.
7. All guests, spectators, children, and pets shall be supervised by a BAM member at all times while inside the flying field and are encouraged to remain behind the pit tables.
8. When working on running or armed airplanes in the pit area, pilots shall always secure/restrain the aircraft from moving on the ground or rolling off a work bench/pit table.
9. R/C cars and other surface vehicles are prohibited anywhere inside the flying field.
10. Smoking is prohibited anywhere inside the flying field and shall be carried out in a safe and respectful manner in the parking lot.
11. The consumption of alcoholic beverages before or during flight is prohibited.

B. PRE-FLIGHT OPERATION

1. Pilots that use AM/FM radio equipment (50 MHz, 53 MHz, and 72 MHz) shall attach the appropriate frequency pin visibly to their transmitter's antenna whenever it is in use.
2. Pilots shall place their AMA card on the respective channel pin on the frequency board.
3. Pilots shall restrain their aircraft during the start-up (combustion engines) or arming process (electric motors).
4. Pilots shall use one of the designated run-up stands for the start-up and arming process as appropriate for the type and size of aircraft.

5. For larger or electric-powered aircraft, pilots may use the taxiway instead to start up or arm their aircraft while keeping it restrained with the help of another pilot, helper, or tethered to the ground or safety fence.
6. For extended engine tuning and troubleshooting procedures (e.g., more than usually needed to start the engine), pilots shall use one of the run-up stands designated (marked) for tune-ups, break-in and troubleshooting.
7. Pilots shall never leave their aircraft unattended while the aircraft is running or armed even if it is secured and restrained.

C. FLIGHT OPERATION

1. Pilots shall only taxi aircraft on the taxiways and runway. No taxiing is permitted in the pit area.
2. While flying, pilots must remain behind the safety fence and never block the taxiways.
3. Pilots shall verbally communicate their intentions during takeoffs, landings, and emergencies.
4. Pilots shall always fly their aircraft north of the centerline of the runway and remain within the approved fly zones (see fly zone map for details).
5. Only pilots or a supervised helper are permitted beyond the safety fence (e.g., to retrieve an aircraft).
6. Landing aircraft have the right of way. Dead-stick landings shall be called as such and given immediate right of way.
7. Pilots shall announce low passes, touch-and-gos, and hovering directly near or above the runway.
8. Pilots shall not take off from or land on the taxiways. This applies to all aircraft types, including rotary-wing and micro aircraft.
9. No more than five (5) aircraft shall be in the air at one time. This includes rotary-wing and micro aircraft.
10. Pilots shall call all maiden flights prior to flight. All other aircraft shall be grounded until the maiden flight has been completed.
11. All hand launches shall be called to alert other pilots. Hand launches shall be performed either from the runway or the area between the runway edge and the safety fence.

Academy of Model Aeronautics National Model Aircraft Safety Code

Effective January 1, 2014

- A. **GENERAL:** A model aircraft is a non-human-carrying aircraft capable of sustained flight in the atmosphere. It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and any additional rules specific to the flying site.
1. Model aircraft will not be flown:
 - (a) In a careless or reckless manner.
 - (b) At a location where model aircraft activities are prohibited.
 2. Model aircraft pilots will:
 - (a) Yield the right of way to all human-carrying aircraft.
 - (b) See and avoid all aircraft and a spotter must be used when appropriate. (AMA Document #540-D.)
 - (c) Not fly higher than approximately 400 feet above ground level within three (3) miles of an airport without notifying the airport operator.
 - (d) Not interfere with operations and traffic patterns at any airport, heliport or seaplane base except where there is a mixed use agreement.
 - (e) Not exceed a takeoff weight, including fuel, of 55 pounds unless in compliance with the AMA Large Model Airplane program. (AMA Document 520-A.)
 - (f) Ensure the aircraft is identified with the name and address or AMA number of the owner on the inside or affixed to the outside of the model aircraft. (This does not apply to model aircraft flown indoors.)
 - (g) Not operate aircraft with metal-blade propellers or with gaseous boosts except for helicopters operated under the provisions of AMA Document #555.
 - (h) Not operate model aircraft while under the influence of alcohol or while using any drug that could adversely affect the pilot's ability to safely control the model.
 - (i) Not operate model aircraft carrying pyrotechnic devices that explode or burn, or any device which propels a projectile or drops any object that creates a hazard to persons or property.
Exceptions:
 - Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight.
 - Rocket motors (using solid propellant) up to a G-series size may be used provided they remain attached to the model during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code but may not be launched from model aircraft.
 - Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Team AMA Program Document. (AMA Document #718.)
 - (j) Not operate a turbine-powered aircraft, unless in compliance with the AMA turbine regulations. (AMA Document #510-A.)
 3. Model aircraft will not be flown in AMA sanctioned events, air shows or model demonstrations unless:
 - (a) The aircraft, control system and pilot skills have successfully demonstrated all maneuvers intended or anticipated prior to the specific event.
 - (b) An inexperienced pilot is assisted by an experienced pilot.
 4. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.
- B. **RADIO CONTROL (RC)**
1. All pilots shall avoid flying directly over unprotected people, vessels, vehicles or structures and shall avoid endangerment of life and property of others.
 2. A successful radio equipment ground-range check in accordance with manufacturer's recommendations will be completed before the first flight of a new or repaired model aircraft.
 3. At all flying sites a safety line(s) must be established in front of which all flying takes place. (AMA Document #706.)
 - (a) Only personnel associated with flying the model aircraft are allowed at or in front of the safety line.
 - (b) At air shows or demonstrations, a straight safety line must be established.
 - (c) An area away from the safety line must be maintained for spectators.
 - (d) Intentional flying behind the safety line is prohibited.
 4. RC model aircraft must use the radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
 5. RC model aircraft will not knowingly operate within three (3) miles of any pre-existing flying site without a frequency-management agreement. (AMA Documents #922 and #923.)
 6. With the exception of events flown under official AMA Competition Regulations, excluding takeoff and landing, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and the pilot's helper(s) located at the flightline.
 7. Under no circumstances may a pilot or other person touch an outdoor model aircraft in flight while it is still under power, except to divert it from striking an individual.
 8. RC night flying requires a lighting system providing the pilot with a clear view of the model's attitude and orientation at all times. Hand-held illumination systems are inadequate for night flying operations.
 9. The pilot of an RC model aircraft shall:
 - (a) Maintain control during the entire flight, maintaining visual contact without enhancement other than by corrective lenses prescribed for the pilot.
 - (b) Fly using the assistance of a camera or First-Person View (FPV) only in accordance with the procedures outlined in AMA Document #550.
 - (c) Fly using the assistance of autopilot or stabilization system only in accordance with the procedures outlined in AMA Document #560.
- C. **FREE FLIGHT**
1. Must be at least 100 feet downwind of spectators and automobile parking when the model aircraft is launched.
 2. Launch area must be clear of all individuals except mechanics, officials, and other fliers.
 3. An effective device will be used to extinguish any fuse on the model aircraft after the fuse has completed its function.
- D. **CONTROL LINE**
1. The complete control system (including the safety thong where applicable) must have an inspection and pull test prior to flying.
 2. The pull test will be in accordance with the current Competition Regulations for the applicable model aircraft category.
 3. Model aircraft not fitting a specific category shall use those pull-test requirements as indicated for Control Line Precision Aerobatics.
 4. The flying area must be clear of all utility wires or poles and a model aircraft will not be flown closer than 50 feet to any above-ground electric utility lines.
 5. The flying area must be clear of all nonessential participants and spectators before the engine is started.